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System, receiver, method, program for distributing content

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System, receiver, method, program for distributing content

The invention relates to a system for distributing a content.

The invention also relates to a receiver, a method and a computer program product for use in such a system.

5

A system as described in the opening paragraph is known from WO 01/91417A2. This document discloses a streaming media delivery system that employs multiple client data networks storing copies of the streaming media, for distributing a content to a large number of users. When a viewer wishes to see content, the system chooses a client data network which is best for providing the media content and directs a client wrapper object on the viewer's system to that network. When the quality of delivery from that network becomes too low, a client wrapper object on the viewer's system can request a switchover to a new client data network. The system may also redirect the wrapper object to receive content from a different network for maintenance purposes and the like. The viewer wrapper object also provides monitoring information on communication line quality and the like to the system for feedback and logging purposes.

It is a drawback of the known system that a redirection server and a monitoring server are required. This increases the complexity and the cost of the system. Moreover, the system can no longer select a client data network which is best for providing the media content, if either the redirection server or the monitoring server malfunction, or if connectivity is lost to those servers.

It is an object of the invention to provide a system of the kind described in the opening paragraph that is able to distribute the content to the receiver in a relatively simple, reliable and cheap manner.

The object is realized in that the system comprises:

- a receiver for receiving the content, the receiver comprising:
- a selector for selecting a distributor of the content out of a plurality of distributors;

- content requesting means for requesting the content from the distributor selected;
 - receiving means for receiving the content;
 - identity determining means for determining an identity associated to the content; and
 - a verifier for verifying an availability of the content at the distributor based on the
- 5 identity determined,

- the distributor of the content, comprising:

- content request receiving means for receiving a request for the content;
- a dispatcher for dispatching the content,

10 wherein the distributor is arranged to dispatch the content to the receiver in response to receiving a request for the content from the receiver, and wherein the receiver is arranged to only select the distributor if the verifier verified the availability of the content at the distributor.

15 By having the availability of the content at the distributor verified before selecting the distributor, the reliability of the system is increased as it is ensured that the content is available at the distributor where the content is requested. The verification does not require an additional server, because the receiver is in charge of the verification.

20 The invention is based on the recognition that the receiver is in a relatively good position to select the distributor from which to obtain the content, and that verifying an availability of the content at the distributor increases the reliability of selecting a suitable distributor.

25 The system may comprise a network with a receiver with a processor for processing or rendering the content for presentation to a user of the receiver. The system may comprise the Internet, a world wide web, an infrastructure with a client-server architecture, a server, a head-end, a set top box, a network of web services, or a network that uses a Digital Video Broadcasting (DVB) standard.

30 The content may for example be news, a movie, an audio track, a still picture, a web page, a multimedia message, a webcast, an on-line multi-media event or experience. The content may be distributed in a format as e.g. a DVB stream, an MPEG stream, a stream of packets, a download file, or a physical medium. The content may be distributed with an energy pattern traveling over a physical medium e.g. the air, a set of conductors, a guide for electromagnetic energy as an optical fibre or a waveguide. The content may alternatively be stored on a carrier and distributed by distribution of the carrier. Examples are mass storage media, e.g. an optical disc as CD, DVD, HD-DVD, Blu-Ray.

The distribution may involve sampling the content, digitizing the content, source coding the content, channel coding the content, decoding the content. Instead of sampling the content, it may be synthesized or generated with a computer. The content may be produced or stored at the distributor or alternatively at a content provider that provides the content to the distributor.

The system comprises a receiver for receiving the content and a distributor of the content. The receiver may e.g. be a device owned by an end-user. It may for example be a personal computer, or consumer electronics like a television set, an audio receiving set, a set top box, a jukebox, a media player, a smartphone, a home cinema system. The distributor may e.g. be owned by an access provider, a service provider, an aggregator service provider, a service reseller, a service broker, or a telecommunications operator. The system may be able to simultaneously support relatively large numbers of receivers and relatively large numbers of distributors.

The receiver comprises a selector for selecting a distributor of the content out of a plurality of distributors. The selector may e.g. be implemented in hardware with for example digital circuit logic, or in software with for example a routine for sorting or filtering a list of the plurality of distributors or addresses thereof. The receiver may be configured with the plurality of distributors. The receiver may be arranged to obtain the plurality from a source. The receiver may be configured with an address of the source of the plurality. The content may comprise the plurality of distributors, and the receiver may be arranged to extract the plurality from the content received. The receiver may use still other mechanisms to discover the plurality of distributors.

The receiver comprises content requesting means for requesting the content from the distributor selected, and receiving means for receiving the content. The content request means and the receiving means may each comprise or share an antenna, a tuner, a network adapter, a detector, a channel encoder/decoder, a content encoder/decoder, a signaling stack. The content request may have a format like a HTTP request, a multicast join, a SIP invite, or a still other format.

The distributor of the content comprises content request receiving means for receiving a request for the content and a dispatcher for dispatching the content. The content request receiving means and the dispatcher may each comprise or share means mentioned above for the content request means and the receiving means.

The distributor is arranged to dispatch the content to the receiver in response to receiving a request for the content from the receiver. An example of a distributor is a

server of a network according to a client-server architecture, e.g. a HTTP server, a CORBA server, a DCOM server, a server offering a web service, a node in a multicast hierarchy, a multicast server, a server implementing an API for invoking remote methods, or a server typically owned by a service provider.

5 The receiver comprises for determining an identity associated to the content.

 The identity has the purpose of uniquely identifying the content. To avoid a change in content received upon selecting a distributor, it is to be avoided that a single identity is additionally associated with another content. To avoid an unnecessary restriction of selectable distributors of the content, it is to be avoided that another identity is additionally
10 associated with the content. Therefore, the identity is ideally associated to the content by a one-to-one mapping. The identity is depending on the content, but not on e.g. the distributor or on the particularities for addressing the content. This ensures that each alternative distributor of the content may be identified based on the identity.

 The identity may have the format of e.g. a plain string of bits, an ASCII coded
15 string of digits, a watermark, or a still other format.

 The identity may be obtained in accordance with one out of several principles. In e.g. a first principle, the receiver is configured with the identity. This has the advantages that it is relatively simple and that it offers an immediate availability of the identity at the receiver. In e.g. a second principle, the receiver is configured with a set of identities each
20 associated with a feature of the respective content, and the appropriate identity is selected out of the set by examining the content for the respective feature. This has the advantage that the receiver may apply a plurality of identities without the hassle of obtaining the identities from elsewhere. In a third principle, the receiver obtains the identity by receiving it. This has the advantage that the receiver does not need configured identities. This allows for changes in the
25 identities handled over time by the receiver. It may also lower memory requirements. Since the identities are received, an accumulator for many identities can be disposed of. In a fourth principle, the receiver sends a request for the identity and receives the identity in a response. In a fifth principle, the identity is derived from the content or part of the content. This has the advantages that the identity is rigidly coupled to the content, eliminating some possibilities
30 for mixing up identities and respective contents. An example is to offer the content to an input of a calculator that implements an identity generating function of the input, e.g. a hash function, or a fingerprint. In e.g. a sixth principle, an identity is obtained from an identity issuing authority that registers the mapping from content to identity. This has the advantage that the issuing of identities may be subject to enforcement policies. In e.g. a seventh

principle, the identity is assigned to the content at the time it is created. The identity may then e.g. depend on the content creation time, the content creator, the content creating application, or credentials of either of those. This has the advantage that the content only exists while being associated to an identity, eliminating a cause for unidentifiable content.

5 The receiver comprises a verifier for verifying an availability of the content at the distributor based on the identity determined. The verifier may perform the verification by matching the identity with e.g. another identity previously obtained. Alternatively, the verifier may forward the identity and delegate the verification to e.g. a distributor. The verifier may comprise a memory for storing particularities of previous verifications, and rely
10 on the contents of the memory for a faster verification.

 The receiver is arranged to only select the distributor if the verifier verified the availability of the content at the distributor. This may be achieved with one of several methods. With a first method, a distributor is pre-selected out of the plurality, and the availability of the content at the pre-selected distributor is verified by the verifier. The
15 pre-selection may be done by picking a distributor at random. This has the advantage that all distributors have an equal change to be pre-selected, avoiding any bias. Alternatively, the pre-selection may be done by taking a history of selected distributors and their particularities into account, for example favoring frequently selected distributors, or avoiding pre-selection of a distributor of which the last reception suffered from a relatively bad quality. This has the
20 advantage that a relative low average number of verifications may suffice for a positive verification.

 With a second method, the receiver comprises a memory and stores an inventory of contents available from at least two of the plurality of distributors. To achieve this, the receiver may actively query the distributors for their contents, or the receiver may
25 receive this as part of pushes from the distributors, e.g. service announcements. The information stored in the memory may be processed to obtain a list of alternative distributors for each identity. This has the advantage that an alternative distributor can be found relatively fast with a look-up.

 The selector may be triggered to select a distributor by an event. Examples of
30 the event are a demand for another content, a drop in a content reception quality, a clock arriving at a chosen relative time, a change in a condition for the distribution e.g. a fee to be paid.

 The content may be produced at the distributor, or alternatively be produced at a content creator.

A further advantage of the system is that no additional reporting on the connections is required from the receiver, thus saving bandwidth. In the prior art system, the client wrapper object has to provide information to the monitoring server, to enable the monitoring server to monitor. This generates traffic that may interfere with the streams that carry the content. In addition, it consumes bandwidth, which is a limited resource.

Another advantage is that the system may also work properly in a situation with at least two completely decoupled networks. In such a case, the system comprises a first network with a first distributor and a second network with a second distributor, and the receiver is part of both the first and the second network. The first network comprises a first communication path between the receiver and the first distributor. Similarly, the second network comprises a second communication path between the receiver and the second distributor. The first and the second network may be mutually completely decoupled, and the first and the second communication path may be mutually exclusive, while the receiver is still capable to verify availability of a content at both the first and at the second distributor.

Advantageously, the receiver comprises a memory for storing the identity. This has the advantage that the identity, once stored, is immediately available at the receiver, providing for a relatively fast identification.

The memory may additionally store particularities for requesting and receiving the content from the distributor. Examples of particularities are an address of the distributor to which the request is send, or e.g. a TCP socket, a UDP socket, or multicast address of where to obtain the content from. This has the advantage that, retrieving the particularities from the memory, the content may be received relatively fast after selecting the distributor.

The memory may additionally store identities and particularities pertaining to a further distributor in the plurality of distributors. This has the advantage that the receiver may determine a list with verified alternative distributors for each content available, with the possibility to further reduce the time for selecting a distributor and for initiating reception of the content from that distributor.

Advantageously, the receiver stores data on several distributors offering the content, while only presenting, at least as a default, a single occurrence of the content in an interface to an operator of the receiver. This has the advantage that the operator is not disturbed with several instances of the same content.

In an embodiment, the system has the features of claim 2, and the receiver receives the identity, besides the content. The receiver therefore comprises identity receiving means. The identity receiving means and the content receiving means may have parts in

common, for example an antenna, an input connector, an amplifier, a mixer, a detector, a decoder, a network adapter, a protocol stack. The receiver is arranged for determining an identity by receiving the identity from one out of the plurality of distributors. This has the advantage that the receiver does not need to e.g. compose, construct or calculate the identity, thus saving resources like power, processing capacity and memory. Another advantage is that the receiver does not need to be configured for a particular identity. Since identities received may be disposed of after the verifying, another advantage is that the receiver may handle enormous amounts of identities without exhausting resources like memory. Advantageously, it may be relatively easy to obtain a one to one mapping between identity and content, depending on the manner in which identities are distributed. The identity received may be implemented with a so-called push model, where the identity is distributed and received without a request for the identity. This may save on the required bandwidth to distribute the identities, especially if e.g. only the changes in the identities are communicated with the push model.

In another embodiment, the system has the features of claim 3, and the receiver may request the identity from the distributor. The receiver therefore has identity requesting means and receives the identity after requesting the identity from the distributor. The distributor in turn has identity request receiving means for receiving the request for the identity and an identity dispatcher for dispatching the identity in response to receiving a request for the identity. This embodiment has the advantage that the receiver has control over when the identity is requested and from which distributor. This may save bandwidth with respect to the push model, because the identity is only distributed if the receiver needs it. The request for the identity is also an additional check in the sense that the distributor must be reachable or be connected, before requesting the content.

In another embodiment, the system has the features of claim 4, and the receiver may switch distributors. The system therefore comprises a further distributor. The receiver is arranged to receive a further identity from the further distributor. The verifier comprises a comparator for comparing the identity associated to the content with the further identity received. The verifier is arranged for verifying the availability of the content at the further distributor if the identity equals the further identity. The receiver is arranged to only select the further distributor if the verifier verified the availability of the content at the distributor. This has the advantage that the receiver may switch between a state of receiving the content from the distributor to a further state of receiving the content from the further distributor. While switching from state to state, the verification ensures that the very same

content is available at the distributor switched to. To further enhance this, the switching may be performed such that the content is received without interruptions or hick-ups. Several techniques may be applied to achieve this. With a first technique, the receiver is able to switch to the further distributor just as the content starts to arrive from the further distributor.

- 5 With a second technique, the receiver receives the content from both the distributor and the further distributor for a relatively short while. During this time the switching is done. This technique may be further enhanced by overcoming a time difference between the respective contents. In one example, respective contents are at least partially stored in a buffer to accommodate for the time difference.

- 10 In another embodiment, the system has the features of claim 5, and selecting a distributor may be triggered by a change in a quality of receiving the content. The receiver comprises quality determining means that determine a quality of receiving the content of the distributor, and selects the further distributor in dependence of the quality determined. This may contribute to a reception with a high quality, because selecting a further distributor is
- 15 e.g. triggered by the quality dropping below a chosen threshold. The quality may for example pertain to a technical property of the reception, e.g. a packet loss rate of packets carrying the content through a packet based network, a received signal strength of an electromagnetic carrier wave modulated with the content, a measured bit error rate of a stream of bits in a digital channel, a frame retransmission rate of frames carrying the content. The quality may
- 20 alternatively pertain to a non-technical property of the reception, e.g. a billing scheme for the content from the distributor, an availability of a resource along the path to the distributor, a loyalty program for the content from the distributor.

- In another embodiment, the system has the features of claim 6, and the identity may be derived from the content. The receiver has identity deriving means and derives the
- 25 identity from content received from one out of the plurality of distributors. This offers a combination of the above mentioned advantages of receiving the identity, while adding the advantage that the identity is rigidly coupled to the content until it is derived. An identity that is separate from the associated content or less rigidly coupled, bears a higher risk of getting lost or being associated to another content by mistake. The content may for example contain
- 30 the identity as a watermark and the identity deriving means may extract the watermark from the content.

In another embodiment, the system has the features of claim 7, and the verification may be at least partially delegated to a further distributor comprised by the system. The further distributor comprises verification request receiving means for receiving a

verification request for verifying availability at the further distributor of content associated to a further identity. The further identity is part of the verification request. The further distributor comprises a verification result dispatcher for dispatching a verification result. The further distributor is arranged to, in response to receiving the verification request from the receiver, verify availability at the further distributor of content associated to the further identity and to dispatch the verification result to the receiver. The receiver is arranged to only select the further distributor after dispatching a verification request to the further distributor and receiving a verification result that verifies the availability of the content at the further distributor. Since the further distributor is equipped to participate in the verifying, this embodiment has the advantage that the receiver does not need to handle or compare multiple identities. This may save on the complexity of the system, for example because the system may comprise thousands of receivers, but only a dozen distributors.

The above object and features of the system 100 of the present invention will be more apparent from the following description with reference to the drawing.

Fig. 1 shows a block diagram of a system 100 according to the invention.

In this embodiment, the system 100 comprises a network for distributing a Digital Video Broadcasting (DVB) service 101, as discussed in the Digital Video Broadcasting standardization consortium. The distributor 103 is e.g. a node in a multicast hierarchy, which is typically owned by a service provider 103. In this embodiment, the content 101 is a single Digital Video Broadcasting service 101, but it may in general also be a multiplex of such DVB services, or a bouquet. The receiver 102 is a so-called Home Network End Device (HNED). The HNED can for example be a Set Top Box, an Internet television product, an Internet Radio or a PC equipped with a terminal adapter. The HNED typically comprises software for obtaining the content 101 from the received signals.

In the following, the terms DVB service 101, service provider 103, and HNED 102 are used, which respectively refer to the terms content 101, distributor 103, and receiver 102.

Each DVB service 101 associates to an identity 108 with a one to one mapping. The identity 108 may therefore serve to verify that another instance of a DVB service 101 offered by a further service provider 116 is indeed the same DVB service 101 as

the instance of the selected service provider 103. Based on the identity 108, the HNED may be arranged to present each DVB service 101 only once to the user via the user interface.

This avoids disturbing the user with multiple instances of the same DVB service 101. New DVB services may be announced with a service announcement. The service announcement

5 may comprise respective identities of the new DVB services. The service announcements may be provided to the HNED via a regular multicast – the push model - or via an HNED initiated request – the pull model. The receiver 102 may comprise a memory for storing data pertaining to receiving DVB services, for example identities of available content 101, multicast addresses, IP addresses, and a history of a quality of the receiving. In response to
10 receiving a service announcement, the receiver 102 may update the data stored in the memory.

Multiple service providers 103 may simultaneously offer a single DVB service 101 to a user, resulting in multiple instances of the DVB service 101. The DVB service 101 may be offered via a single access network connection or it may be offered via various access
15 network connections. The network/traffic parameters, the quality of the service and the cost of the service generally differ between the various service providers 103.

It may be expected that an HNED stores only the information pertaining to one of the available instances of a DVB service 101, because this saves the memory for storing the particulars of the other instances of the same DVB service 101, and because this suffices
20 for initiating a reception of the DVB service 101. The availability of a DVB service 101 can however in general not be guaranteed, because the 'state' of a network connection is not stable with respect to, for instance, an available bandwidth, a delay, a jitter, or a cost of the connection. If the HNED only stores the information of one instance, a user of the HNED may notice a disrupted reception, an incomplete service 101 or even a black screen, if the
25 DVB service 101 cannot be delivered by the current service provider 103 anymore. This may last until the HNED receives an update of the available DVB services.

In an HNED in accordance with the invention, the HNED may also store information of a further instance of the DVB service 101 available at a further distributor 116. As a default, the HNED may present only a single instance to the operator of the HNED.
30 By storing the relevant information from at least another instance of a service 101 in the HNED, the HNED is able to select a further instance based on a criterion. The criterion could be dependent on the user profile. It is especially useful that, when the connection is lost to the currently selected provider that provides the service 101, the HNED can quickly select another provider based on the stored information about a further instance of the same service

101. A relatively fast selection is possible if the information is stored in the HNED. In such a case, there is no need for gathering the information, which may involve waiting for a new multicast message with the information for the push-model, or requesting the information from a server for the pull-model.

5 The receiver 102 may be an Internet-enabled radio set, for example a Philips Streamium. This particular receiver 102 may contact a default aggregator service provider 103, e.g. the Philips PIAP-platform, to get a list of radio channels. However, the receiver 102 may also contact another aggregator service provider 103 or a further service provider 116, to receive a further list of radio channels. Content available from the PIAP-platform may also
10 be available from other service providers 103.

 In an example scenario, the user is listening to a radio channel dubbed Radio-1, which is streamed from the PIAP-platform but which is also announced by a further service provider 116. The receiver 102 stores the information of both service providers 103 with respect to Radio-1. At a certain moment, a problem may occur in the network between
15 the PIAP-platform and the receiver 102, causing Radio-1 to be no longer received from the PIAP-platform. At the moment the connection goes down, the receiver 102 may set up a connection to the further service provider 116 and the reception of Radio-1 continues. This is possible if the information from the further service provider 116 is already stored in the HNED. The receiver 102 may be arranged to perform the fail-over to the further service
20 provider 116 without requiring user intervention.

 In a prior art system, however, a prior art receiver would remove the failing channel from the list of channels. The user then typically selects another channel for listening. Some time later, probably in the order of minutes, the Radio-1 channel would typically come back in the list, possibly via a push or a pull from a further service provider.

25 In the above scenario, selection of the service provider 103 is triggered by the channel being no longer received from the PIAP-platform. However, the receiver 102 could also be triggered to select by changes in the information of the various service 101 parameters.

 The same service 101 may be offered from several locations at the same time.
30 The identity 108 suffices to determine service instances of the same service 101, as long as the identity 108 is unique over all services offered by the plurality of distributors.

 It is noted that the above-mentioned embodiments illustrate rather than limit the invention, and that those skilled in the art will be able to design many alternative embodiments without departing from the scope of the appended claims. In the claims, any

reference signs placed between parentheses shall not be construed as limiting the claim. Use of the word "comprise" and its conjugations does not exclude the presence of elements or steps other than those stated in a claim. Use of the indefinite article "a" or "an" preceding an element does not exclude the presence of a plurality of such elements. The invention can be
5 implemented by means of hardware comprising several distinct elements, and by means of a suitably programmed computer. In a system or a device claim that enumerates several means, several of these means can be embodied by the same item of hardware. The mere fact that certain measures are recited in mutually different dependent claims does not indicate that a combination of these measures cannot be used to advantage.

10 A 'computer program' is to be understood to mean any software product stored on a computer-readable medium, such as a floppy-disk, downloadable via a network, such as the Internet, or marketable in any other manner.

CLAIMS:

1. A system (100) for distributing a content (101), the system comprising:
 - a receiver (102) for receiving the content (101), the receiver comprising:
 - a selector (104) for selecting a distributor (103) of the content (101) out of a plurality of distributors;
 - 5 - content requesting means (105) for requesting the content (101) from the distributor (103) selected;
 - receiving means (106) for receiving the content (101);
 - identity determining means (107) for determining an identity (108) associated to the content (101); and
 - 10 - a verifier (109) for verifying an availability of the content (101) at the distributor (103) based on the identity (108) determined,
 - the distributor (103) of the content (101), comprising:
 - content request receiving means (110) for receiving a request for the content (101);
 - a dispatcher (111) for dispatching the content (101),
 - 15 wherein the distributor (103) is arranged to dispatch the content (101) to the receiver (102) in response to receiving a request for the content (101) from the receiver (102), and wherein the receiver (102) is arranged to only select the distributor (103) if the verifier (109) verified the availability of the content (101) at the distributor (103).
- 20 2. A system (100) as claimed in claim 1, wherein the receiver (102) comprises identity receiving means (112) and wherein the receiver (102) is arranged for determining an identity (108) by receiving the identity (108) from one out of the plurality of distributors.
3. A system (100) as claimed in claim 2, wherein the receiver (102) comprises
 - 25 identity requesting means (113), wherein the receiver (102) is arranged for receiving the identity (108) after requesting the identity (108) of the content (101) from the distributor (103), wherein the distributor (103) comprises:
 - identity request receiving means (114) for receiving a request for the identity (108) of the content (101);

- an identity dispatcher (115) for dispatching the identity (108), and wherein the distributor (103) is arranged to dispatch the identity (108) to the receiver (102) in response to receiving a request for the identity (108) of the content (101) from the receiver (102).

5

4. A system (100) as claimed in claim 2, wherein the system (100) comprises a further distributor (116), wherein the receiver (102) is arranged to receive a further identity (124) from the further distributor (116), wherein the verifier (109) comprises a comparator (118) for comparing the identity (108) associated to the content (101) with the further identity (124) received, wherein the verifier (109) is arranged for verifying the availability of the content (101) at the further distributor (116) if the identity (108) equals the further identity (124), and wherein the receiver (102) is arranged to only select the further distributor (116) if the verifier (109) verified the availability of the content (101) at the further distributor (116).

10

15 5. A system (100) as claimed in claim 4, wherein the receiver (102) comprises quality determining means (119) for determining a quality of receiving the content (101) of the distributor (103) and wherein the receiver (102) is arranged for selecting the further distributor (116) in dependence of the quality determined.

20 6. A system (100) as claimed in claim 2, wherein the receiver (102) comprises identity deriving means (121) and wherein the receiver (102) is arranged for deriving the identity (108) from content (101) received from one out of the plurality of distributors.

25 7. A system (100) as claimed in claim 2, wherein the system (100) comprises a further distributor (116), wherein the further distributor (116) comprises:

- verification request receiving means (122) for receiving a verification request (123) for verifying availability at the further distributor (116) of content (101) associated to a further identity (124), the further identity (124) being part of the verification request (123); and

30 - a verification result dispatcher (125) for dispatching a verification result (126), wherein the further distributor (116) is arranged to, in response to receiving the verification request (123) from the receiver (102), verify availability at the further distributor (116) of content (101) associated to the further identity (124) and to dispatch the verification result (126) to the receiver (102), and wherein the receiver (102) is arranged to only select the

further distributor (116) after dispatching a verification request (123) to the further distributor (116) and receiving a verification result (126) that verifies the availability of the content (101) at the further distributor (116).

5 8. A receiver (102) for receiving a content (101), comprising:

- a selector (104) for selecting a distributor (103) of the content (101) out of a plurality of distributors;

- content requesting means (105) for requesting the content (101) from the distributor (103) selected;

10 - receiving means (106) for receiving the content (101);

- identity determining means (107) for determining an identity (108) associated to the content (101); and

- a verifier (109) for verifying an availability of the content (101) at the distributor (103) based on the identity (108) determined,

15 and wherein the receiver (102) is arranged to only select the distributor (103) if the verifier (109) verified the availability of the content (101) at the distributor (103).

9. A method for distributing a content (101), comprising:

- selecting a distributor (103) of the content (101) out of a plurality of distributors,

20 - requesting the content (101) from the distributor (103) selected,

- dispatching the content (101) to the receiver (102) in response to receiving the request for the content (101) from the receiver (102),

- receiving the content (101) at the receiver (102),

- determining an identity (108) associated to the content (101), and

25 - verifying an availability of the content (101) at the distributor (103) based on the identity (108) determined,

and wherein in the step of selecting, the distributor (103) is only selected if the verifier (109) verified the availability of the content (101) at the distributor (103).

30 10. A computer program product enabling a receiver (102) that is part of a system (100) for distributing a content (101) to select a distributor (103) of the content (101) out of a plurality of distributors, to request and receive the content (101) from the distributor (103) selected, to determine an identity (108) associated to the content (101), to verify an availability of the content (101) at the distributor (103) based on the identity (108)

determined, and to only select the distributor (103) after verifying the availability of the content (101) at the distributor (103).

ABSTRACT:

A system 100 for distributing a content 101 has a distributor 103 of the content 101 and a receiver 102 for receiving the content 101 from the distributor 103.

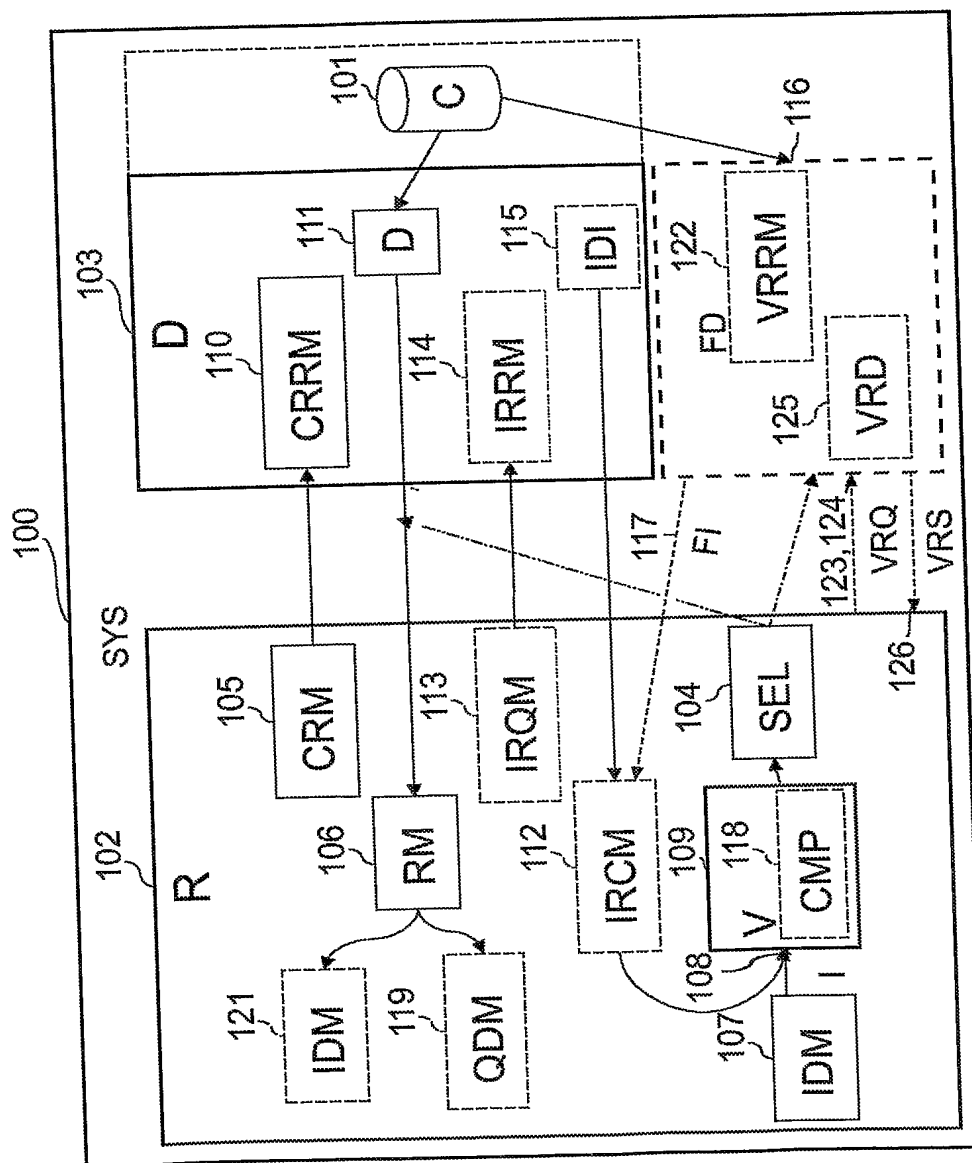
The receiver 102 has a selector 104 for selecting a distributor 103 out of a plurality of distributors, content requesting means 105 for requesting the content 101 from the distributor
5 103 selected, receiving means 106 for receiving the content 101, and identity determining means 107 for determining an identity 108 associated to the content 101, and a verifier 109 for verifying an availability of the content 101 at the distributor 103 based on the identity 108 determined.

The distributor 103 of the content 101 has content request receiving means
10 110 for receiving a request for the content 101 and a dispatcher 111 for dispatching the content 101.

The distributor 103 is arranged to dispatch the content 101 to the receiver 102 in response to receiving a request for the content 101 from the receiver 102.

The receiver 102 is arranged to only select the distributor 103 if the verifier
15 109 verified the availability of the content 101 at the distributor 103.

Fig. 1



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